

WHAT IS CLAIMED IS:

1. A method for monitoring an area of interest having a border and an interior region, the method comprising the steps of:  
monitoring at least a portion of the border region of the area of interest for breach by an object; and  
monitoring at least a portion of the interior region of the area of interest for the object after the object breaches the border.

2. The method of claim 1 further comprising the step of:  
ceasing to monitor the interior region of the area of interest after the object leaves the area of interest; and  
continuing to monitor at least a portion of the border region of the area of interest after the object leaves the area of interest.

3. The method of claim 1 wherein the interior region of the area of interest is not monitored until the object no longer breaches the border region of the area of interest.

4. The method of claim 1 further comprising the step of:  
continuing to monitor at least a portion of the border region of the area of interest while the interior region is being monitored.

5. The method of claim 1 further comprising the step of providing a safety output when the border region is breached by the object.

6. The method of claim 5 wherein the safety output disables a piece of equipment located in the area of interest.

7. The method of claim 5 wherein the safety output sounds an alarm.

8. The method of claim 1 wherein the border region comprises a continuous region.

9. The method of claim 1 wherein the border region comprises an interrupted region.

10. The method of claim 1 wherein the area of interest excludes a defined region from its interior.

11. A method for monitoring an area of interest having a border and an interior, the method comprising the steps of:  
capturing an capture image of the area of interest;  
identifying one or more border regions in the captured image that correspond to the border of the area of interest;  
analyzing the one or more border regions of the captured image and determining if an object has entered the one or more border regions of the area of interest; and  
outputting a signal indicating when an object has entered the one or more border regions of the area of interest.

12. The method of claim 11 wherein the one or more border regions include a reference marking.

13. The method of claim 11 wherein the reference marking is a predetermined pattern.

14. The method of claim 11 wherein the step of analyzing the one or more border regions of the captured image comprises the step of comparing the one or more border regions of the capture image to one or more corresponding regions of a reference image.

15. The method of claim 14 wherein the border of the area of interest includes a reference marking, and the one or more border regions in the reference image are identified by identifying the reference marking in the reference image.

16. The method of claim 15 wherein the reference marking is a predetermined pattern.

17. The method of claim 16 wherein the predetermined pattern determines a minimum size of the objects to be detected.

18. The method of claim 11 further comprising the step of storing the capture image when an object has entered the area of interest.

19. The method of claim 18 further comprising the step of viewing the stored capture images at a later time.

20. The method of claim 14 wherein the reference image is taken in response to a change in one or more conditions in the area of interest.

21. The method of claim 14 wherein the reference image is taken at a set time interval.

22. The method of claim 11 wherein the step of analyzing the one or more border regions of the captured image comprises the step of comparing the one or more border regions of the capture image to corresponding regions of two or more reference images.

23. The method of claim 22 wherein at least one comparison detects relatively immediate changes, and at least one comparison detects accumulated changes.

24. A method for monitoring an area of interest having a border and an interior region, the method comprising the steps of:

capturing at least two images of the area of interest using two separate image capturing devices;

identifying one or more border regions in the captured images that correspond to the border of the area of interest;

analyzing the one or more border regions of the captured images to determine when an object enters the area of interest; and

outputting a signal indicating whether or not an object has entered the area of interest.

25. The method of claim 24, wherein the image capturing devices are video cameras.

26. The method of claim 24, wherein the image capturing devices are digital cameras.

27. A system for monitoring an area of interest having a border and an interior region, comprising:

capturing means for capturing a capture image of the area of interest; and

monitoring means for monitoring at least a portion of the border region of the area of interest for breach by an object, and for monitoring at least a portion of the interior region of the area of interest for the presence of the object after the object breaches the border.

28. A system for monitoring an area of interest, comprising:

image capturing means for capturing at least one image of the area of interest;

first processing means for processing at least one of the capture images to determine if an object has entered the area of interest;

second processing means for processing at least one of the capture images to determine if an object has entered the area of interest; and

output means for outputting a signal indicating that an object has entered the area of interest when both the first processing means and second processing indicate that an object has entered the object of interest.

29. A system according to claim 28 wherein the image capturing means includes a single image capture device.

30. A system according to claim 28 wherein the image capturing means includes two image capture devices each providing a separate image of the area of interest, wherein a first one of the image capture devices provides a first image of the area of interest to the first processing means and a second one of the image capture devices provides a second image of the area of interest to the second processing means.

31. A method for monitoring an area of interest having a border region and an interior region, the method comprising the steps of:

monitoring at least a portion of the border region of the area of interest for breach by an object having a first minimum size; and

monitoring at least a portion of the interior region of the area of interest for an object having a second minimum size after the object breaches the border region of the area of interest.

32. The method of claim 31 wherein the first minimum size is smaller than the second minimum size.

33. The method of claim 31 wherein the first minimum size is bigger than the second minimum size.

34. The method of claim 31 wherein the interior region is defined to include the border region.

35. The method of claim 31 wherein the interior region is defined to exclude the border region.

36. A method for monitoring an area of interest having two or more regions, each region having a border and an interior region, the method comprising the steps of:

capturing a capture image of the area of interest;  
monitoring the border and/or interior region of a first region of the area of interest for breach by an object; and  
monitoring the border and/or interior region of a second region of the area of interest for breach by an object.

37. The method of claim 36 wherein the border and/or interior region of the first region are monitored independently of the border and/or interior region of the second region.

38. The method of claim 36 wherein the border and/or interior regions of the first and second region are selectively monitored.

39. The method of claim 38 wherein the border and/or interior region of the first region are monitored and the border and/or interior region of the second region are not monitored.

40. The method of claim 38 wherein the border and/or interior region of the first region are monitored and the border and/or interior region of the second region are also monitored.

41. The method of claim 38 wherein the border and/or interior region of the first region are not monitored and the border and/or interior region of the second region are not monitored.